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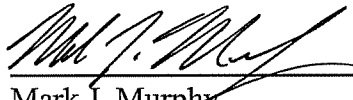
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in the following listed application(s) or patent(s) for which the issue fee has been paid.

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7,245,018 B1	09/598,736	07/17/2007	06/21/2000	5820	0553-0189

Respectfully Submitted,



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(12) **United States Patent**
Takayama et al.

(10) **Patent No.:** **US 7,245,018 B1**
(45) **Date of Patent:** **Jul. 17, 2007**

(54) **WIRING MATERIAL, SEMICONDUCTOR
 DEVICE PROVIDED WITH A WIRING
 USING THE WIRING MATERIAL AND
 METHOD OF MANUFACTURING THEREOF**

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(*) **Notice:** Subject to any disclaimer, the term of this
 patent is extended or adjusted under 35
 U.S.C. 154(b) by 0 days.

Yoshida, T. et al, "A Full Color Thresholdless Antiferroelectric LCD
 Exhibiting Wide Viewing Angle with Fast Response Time," *SID 97
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(Continued)

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H01L 23/48 (2006.01)
H01L 23/52 (2006.01)

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(58) **Field of Classification Search** 257/763,
 257/764, 770; 438/648, 649, 656, 683, 685
 See application file for complete search history.

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(57) ABSTRACT

A semiconductor device having good TFT characteristics is realized. By using a high purity target as a target, using a single gas, argon (Ar), as a sputtering gas, setting the substrate temperature equal to or less than 300° C., and setting the sputtering gas pressure from 1.0 Pa to 3.0 Pa, the film stress of a film is made from -1×10^{10} dyn/cm² to 1×10^{10} dyn/cm². By thus using a conducting film in which the amount of sodium contained within the film is equal to or less than 0.3 ppm, preferably equal to or less than 0.1 ppm, and having a low electrical resistivity (equal to or less than 40 $\mu\Omega$ -cm), as a gate wiring material and a material for other wirings of a TFT, the operating performance and the reliability of a semiconductor device provided with the TFT can be increased.

46 Claims, 26 Drawing Sheets

